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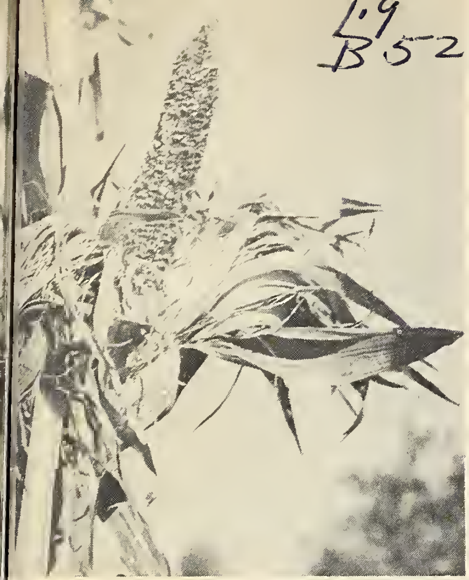

PROTECTING CORN FROM BLACKBIRDS

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Branch of Wildlife Research

The information in this leaflet is based mainly on investigations being conducted by the U. S. Fish and Wildlife Service, chiefly in southern New Jersey, Delaware, the Eastern Shore of Maryland, and southern Florida. Emphasis in this research is toward developing effective methods that the grower can use to protect his corn from blackbirds with the use of scare devices, chemical repellents, and cultural practices.

Although the killing of birds may occasionally be justified and effective locally, their widespread destruction is unfeasible. To produce a marked effect on damage, a large percentage of offending birds would have to be destroyed, and no safe, effective method of drastically reducing blackbird numbers is known. Even if a method were known, control operations against destructive species throughout their extensive ranges would cost millions of dollars. Such costs might well exceed the benefits obtained. Since severe reductions in populations usually are followed by increased breeding success of the surviving birds, control operations would have to be repeated annually, thereby adding to the already excessive costs.

Large-scale reduction of blackbird populations might increase insect damage to crops. Besides damaging corn, red-winged blackbirds and purple grackles feed extensively on grubs and other ground-inhabiting insects, on caterpillars such as armyworms, cutworms, and corn earworms, and on beetles and other noxious insects, especially during the nesting season. Only 5 to 10 percent of the diet of the red-winged blackbird consists of corn.

Blackbirds are popular with the general public, and their mass destruction undoubtedly would be vigorously opposed. Local control efforts commonly are wasteful and produce harmful results. These investigations, therefore, include the development of methods for local use that would be most effective against the offending birds and least hazardous to humans, domestic animals, or desirable wildlife.

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KINDS OF DAMAGE

At corn-planting time birds remove seed from the ground. They also pull the sprouts both before and after emergence. The protection period, therefore, extends from planting time until the sprouts are securely anchored.

Maturing corn is attacked from the time it reaches the milk stage until it is picked. Most severe damage occurs while the kernels are still soft. A single planting of sweet corn is attacked for only 1 to 2 weeks, but field corn is vulnerable for at least 3 weeks. After the grain has hardened, birds chip or pick out individual kernels, so damage occurs at a slower rate than during the milk and early dough stages. Ears with the husk stripped off or opened before the corn has dried often become moldy from the accumulation of moisture under the husk.

BIRD-FRIGHTENING DEVICES

The best protection is obtained by beginning operations before birds become accustomed to feeding on the corn. Scare devices are most effective when used early each morning as the birds arrive from the night roost. Birds are easily driven away from a field during the early morning flight period. Once they are allowed to settle down, they often stay in the vicinity for the rest of the day.

.22- Caliber Rifle Shooting

Technique: Rifleman occupies platform above height of corn. As birds settle into field, bullet is directed into their midst.

Capacity: One man can protect about 100 acres in a solid block. Very effective.

Operating cost: At least 3 man-hours per day and sufficient cartridges to meet the need (usually 50 to 100 per day will suffice).

Limitations: Hazardous to neighboring property, livestock, and humans. May be illegal in certain States.

Rope Firecrackers (See Wildlife Leaflet 365, "The Rope Firecracker", U. S. Fish and Wildlife Service, Washington 25, D. C.)

Technique: Fuses of flash salute firecrackers inserted between strands of cotton rope. Rope assembly is suspended from one end and lighted at the other. As the rope burns it ignites the salutes, which drop to the ground and explode. Timing of explosions can be controlled by spacing of salutes along the rope.

Capacity: 18-grain flash salutes can provide good protection for a block of about 4 acres of standing corn or about 10 acres of open fields of seeded or sprouting corn. If assembly is operated from an overhead stand (see Leaflet 365), so that explosions occur above corn rather than on ground, about twice as much acreage can be protected. The most widely accepted but not the most effective automatic device.

Operating cost: Materials--approximately 12 to 25 cents per acre per day.
Labor--about 5 to 10 minutes per acre per day.

Limitations: Hazardous. Fireworks prohibited in most States, but since the introduction of the rope firecracker for crop protection, certain concessions have been made to farmers in some States for firecracker use.

Two-shot Repeating Bombs (For details see Wildlife Leaflet 365 referred to above)

Technique: Fuses of repeating bombs inserted between strands of cotton rope set in a specially designed horizontal rack for holding bombs upright and protecting them from the weather. Rope lighted at one or both ends as desired. As rope burns, sets of two bombs joined by fuse become ignited, producing two intense explosions in the air about 5 seconds apart. Sets of two explosions occur at intervals according to spacing of the repeating bombs along the cotton rope.

Capacity: Very good protection for a block of approximately 20 acres. Most effective automatic device.

Operating cost: Materials--approximately 40 cents per acre per day.
Labor--approximately 2 minutes per acre per day.

Limitations: Hazardous. Much more powerful than flash salutes. State regulations permitting farmers to use fireworks when otherwise prohibited may not include fireworks of this type.

Gas Exploders

Technique: Exploders of several types. Acetylene gas supplied from tank or gradual dripping of water onto carbide powder. Timing of explosions determined by mechanical timer or gas pressure. Ignition from electric spark, pilot flame, or flint.

Capacity: Variable. All makes of carbide exploders have not been evaluated. Explosions from models tested are less intense than from 18-grain salutes. Useful in small fields and where rope firecrackers are prohibited or not desired.

Operating cost: Low, but cost of machines is high.

Limitations: Mechanical difficulties common in some models.

Shotgun Shooting

Technique: With regular shells or with exploding shells that are projected from a shotgun about 150 yards and explode in the air.

Capacity: Regular shells are ineffective, especially in standing corn, but adequate protection can sometimes be achieved if used with a vehicle to patrol field. Exploding shells are new and have not been adequately tested.

Operating cost: Materials--exploding shells slightly more than regular shells.
Labor--comparable to .22-caliber rifle, but vehicle patrol is extra.

Tossing Flash Salutes

Using a sling-shot or throwing lighted flash salutes by hand after the fuse is partly burned to obtain explosions in the air is EXTREMELY DANGEROUS and is not recommended. Serious accidents, including fatalities, have resulted from misuse of salutes. Manufacturers stress the importance of not holding lighted salutes in one's hand.

Airplanes

Technique: Light airplanes, often equipped with sirens or horns, are flown slightly above tassel height. Pilots endeavor to work a field systematically so that the birds are gradually herded to one edge and finally chased out of the corn field. This technique was observed only in Florida.

Capacity: Not very effective. One plane can cover about 100 to 120 acres at a time. Birds often drop farther down into the corn rather than flush when the plane approaches.

Operating costs: Varies according to contract. Approximates $10 per hour.

Limitations: Airplane operation restricted to favorable flying conditions. The most important time for operating frightening devices is in the early morning hours, when conditions often are unfavorable.

Miscellaneous Devices

Simple scarecrows such as garbed crosses generally are ineffective. More elaborate, lifelike creations with moving parts may provide some protection over a limited distance. Ordinary scarecrows may be made more useful by occasionally shooting from their positions when birds are present in the field.

Spirolum twirlers, plastic flags, shiny propellers, and other objects that rustle, rattle, and spin in the breeze and flash in the sunlight are useful in home gardens where noisemaking devices are objectionable. They have slight application in commercial cornfields, however, because of the limited protection they give.

CULTURAL PRACTICES USEFUL IN PREVENTING DAMAGE

Arrangement of Crops

Bird activity is greatest in fields or parts of fields that are close to a watercourse or desirable resting cover for birds. When possible, crops not subject to bird damage should be grown in those fields.

Elimination of Adjoining Cover

Some corn damage may be avoided by the removal of nearby vegetation which the birds frequently use.

Adjustment of Planting Date

Some growers in southern Florida suffered heavy losses from bird damage to field corn maturing in early winter. When they planted in February, the destructive winter flocks were disbanded before the corn matured, and only breeding birds, that do not attack the corn, were present.

Many streams in Delaware and southern New Jersey contain large stands of wildrice, which redwings prefer to corn. By scheduling the planting of corn so that ears mature when wildrice is available, some damage to corn is avoided. In that area the advisable time for planting field corn of the varieties commonly grown there is during the last week of May and the first week in June.

Alternate Feeding Areas

Blackbirds frequently feed on waste corn in recently harvested fields if it has not been turned under. Therefore, unharvested corn nearby is less severely attacked and is more easily protected.

Depth of Planting

In certain field tests deep-planted seeds produced fuller stands of corn than shallow-planted seeds. Protection from birds may not have been the main reason but it is assumed that added depth would make it more difficult for birds to damage seed and sprouts.

Resistant Varieties

Plant breeders are developing varieties of corn resistant to birds, but the production and growing qualities of the varieties have not yet been widely tested. There is wide variation between different corn varieties in susceptibility to bird attack. Work is under way to rate several conventional varieties of corn for this quality. Recent studies in southern New Jersey show that certain varieties of field corn consistently receive more damage than others when grown under the same conditions. In one test the least resistant corn variety received 185 times the damage of the most resistant variety. The farmer's choice of the variety of corn he will grow can be important in determining the amount of damage sustained by his crop.

This choice of corn variety is not simple. New Jersey tests showed that differences in growth and maturity rates result in differences in amount of bird damage. Thus, two varieties grown together and planted early may not sustain the same relative damage as the same two varieties grown together and planted late in the season. The tests also showed that when several varieties were grown together and planted on three different dates, 2 weeks apart, no variety showed the most resistance on all three dates and no one date proved the best for all varieties. The varieties common to all tests over a 3-year period, listed in order from the most to the least resistant, are as follows: Pioneer 302A, Pioneer 312A, DeKalb 837, New Jersey 7, Connecticut 870, and DeKalb 850.

In other localities the order of resistance might be different. Farmers in areas of heavy bird damage might ask their county or State agricultural authorities to conduct similar tests in their area.

Sweet corn varieties probably also differ in bird damage resistance. Preliminary tests in New Jersey in 1956 indicated varying degrees of resistance among them, but further tests are needed to prove the validity of these results.

Seed Treatments

There are several products on the market, especially coal-tar preparations, for treating seed to repel birds. Field tests are being conducted to determine the effectiveness of these available materials. Research is also in progress for the development of new chemicals for repelling birds. Until further investigations are made, we cannot recommend any chemical treatment for protecting seeds and sprouts from birds.

Reduction of Bird Populations

The purple grackle, red-winged blackbird, cowbird, and meadowlark are protected by Federal law; the crow and starling are not.

However, under Executive Order 2426, effective June 15, 1948, any person is authorized to kill red-winged blackbirds and grackles under certain conditions, restrictions, and requirements when these birds are found committing or about to commit serious depredations upon any agricultural crop. The conditions, restrictions, and requirements are that (a) no plumage or any part of such birds is to be sold or offered for sale, (b) every person availing himself of this privilege shall furnish any game agent with whatever information regarding such operations the officer may require, and (c) such operations must be performed in conformity with State regulations.

State regulations regarding the protection of these birds vary. Some make no allowance for the concession in Executive Order 2426, and in others the use of certain methods of taking these birds, such as poisoning, may be prohibited.

At the present time there is no economically feasible method of appreciably reducing populations of offending birds during the period of damage. Shooting normally is unsatisfactory because of the labor and expense involved. Trapping and poisoning success depends upon attracting birds to bait. Although birds can sometimes be easily baited in the winter, baiting at the height of the growing season usually is unsuccessful. Blackbirds generally show little interest in bait on the ground when they are feeding in standing corn, whereas many doves and other ground-feeding birds may consume it readily.

Poisoning should be resorted to only after safer and less drastic methods have been tried, and then the utmost precautions should be taken. There is danger not only to valuable wildlife species but also to domestic animals and pets, for which the distributor of poison may become liable. Bait should never be distributed in grain stubble where ducks and doves might come to feed. It should never be broadcast, but should be put in piles in marked rows so that it can be easily buried if found harmful to desirable birds or animals.

Since quail, pheasants, poultry, and other gallinaceous birds are less susceptible to strychnine poisoning than most other species of birds, the use of strychnine in bait for bird control is preferred to other poisons. Information concerning the preparation of strychnine-treated bait, or the procurement of prepared ready-to-use baits, may be obtained from Regional Offices of the U. S. Fish and Wildlife Service.

Effective and reasonably safe blackbird poisoning can be done in sweet-corn fields that have been machine-picked. Blackbirds are attracted in large numbers to the mangled ears strewn upon the ground and readily consume poisoned bait distributed through it. Game species are not especially attracted until the corn has begun to dry, and by then the corn is normally ready to be turned under, together with the unconsumed poison bait.

Blackbird population studies have shown that local killing operations have little effect after the nesting season. The birds are then extremely mobile and range over many miles every day. Therefore, only temporary relief can be expected from the reduction of birds in a local area.

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